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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,454

08/24/2006

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4271-61

8521

23117 7590 02/03/2009  
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EXAMINER

FINK, BRIEANN R

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

02/03/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,454	<b>Applicant(s)</b> ROGERS ET AL.	
	<b>Examiner</b> BRIANN R. FINK	<b>Art Unit</b> 4131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01/13/2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/24/06</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### **Election/Restrictions**

1. Applicant's election with traverse of Group I, claims 1-10 in the reply filed on January 13, 2009 is acknowledged. The traversal is on the ground(s) that there is more than one common technical feature between Groups I and II that is not found in the prior art of *Levendis et al.* This is not found persuasive because unity of invention is considered only in relation to the independent claims, and not the dependent claims. See MPEP 1850 II.

The requirement is still deemed proper and is therefore made FINAL.

2. Claim 11-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on January 13, 2009.

### ***Drawings***

3. Figure 4a and 4b are objected to because the black and white photographs are not clear enough to see the detail of the invention. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary,

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the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by *Levendis et al.* (US 5,269,980).

*Levendis et al.* discloses a process for preparing spherical polymer particles by atomizing liquid precursors (col. 1, ll. 51-54). A liquid feed comprises the monomers, a catalyst or initiator, and an optional solvent which is passed through an aerosol generator to create a stream of liquid droplets (col. 1, ll. 55-60). The stream is sprayed into a thermal reactor where the solvent evaporates and the polymerization reaction begins (col. 1, ll. 62-64). Polymerization is completed during the flight-time of the droplets, where the solid particles are

collected at the bottom of the reactor (col. 1, l. 68 - col. 2, l. 2). The thermal reactor includes the introduction of a gas of nitrogen or other inert gases (col. 4, ll. 18-19).

As to claim 2, *Levendis et al.* fails to expressly disclose the use of a nebulizer. However, the applicants describe the nebulizer to be a device that forms an aerosol of liquid droplets (p. 6, para. 1). In this regard, *Levendis et al.* discloses an aerosol generator that forms liquid droplets (col. 1, ll. 55-56). *Levendis et al.* appears to meet the applicants' definition of a nebulizer.

As to claim 3, a preferred embodiment discloses the aerosol generator at the top of the reactor (col. 4, ll. 11-12). *Levendis et al.* further discloses that the polymerization occurs during the flight-time of the droplets through the reactor (col. 1, l. 68 - col. 2, l. 2).

As to claim 4, the polymer particles are collected at the bottom of the reactor (col. 3, l. 68 – col. 4, l. 1).

As to claim 8, *Levendis et al.* discloses the liquid feed as a mixture of initiator and monomers, which may or may not be pre-polymerized (col. 1, ll. 67-60).

As to claim 9, the monomers include styrene, methyl methacrylate, acrylic acids, vinyl acetate, divinyl benzene, etc (col. 3, ll. 15-17).

As to claim 10, the initiator includes those such as benzoyl peroxide (col. 3, ll. 21-21).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Levendis et al.* (US 5,269,980) as applied to claim 1 above and further in view of *Mosso et al.* (US 2001/0051118).

*Levendis et al.* does not disclose using a UV light to initiate polymerization.

*Mosso et al.* teaches a particle production apparatus (p. 1, [0005]) in reaction systems wherein the reactants are in the aerosol or vapor phase (p. 4, [0094]). *Mosso et al.* further teaches that solvents or dispersants can be added to the reaction system that absorbs light, and using any light source, this would transfer heat to the reactants allowing them to reach very high temperatures (Id.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have positioned an intense light next to the reaction chamber of *Levendis et al.* in order to promote reaction initiation.

Further, many free radical initiators, such as peroxides, are initiated by UV light; therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used UV light to initiate the polymerization reaction of *Levendis et al.*

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8. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Levendis et al.* (US 5,269,980) as applied to claim 1 above and further in view of *Jones et al.* (US 4,547,468).

*Levendis et al.* fails to teach positioning the aerosol generator at the bottom of the reactor or introducing hot air into the reactor.

*Jones et al.* teaches a method of spray drying, and tested on a type of alumina (col. 8, ll. 48-49). The reactants were mixed and pumped through a nozzle at the bottom of the dryer (col. 8, ll. 53-57). Hot air was introduced at the top of the dryer to produce a counter current flow to that of the nozzle atomized discharge (col. 8, ll. 59-62). *Jones et al.* further teaches that this allows the atomized particles a longer flight-time, compared to co-current atomization where the air and atomized particles flow in the same direction (col. 62-63). See Figure 3 on page 3.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have placed the aerosol generator of *Levendis et al.* at the bottom of the reactor as suggested by *Jones et al.* in order to allow the aerosol to have a longer flight-time, hence allowing the monomers to have more time to polymerize before being collected at the end of the reactor.

As to claim 6, the heated air would assist in the initiation of the polymerization, as well as control the flight-time of the aerosol in the reactor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIEANN R. FINK whose telephone number is (571)270-7344. The examiner can normally be reached on Monday through Friday, 7:00 AM to 4:30 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on (571)272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/  
Supervisory Patent Examiner, Art Unit 4131

/B. R. F./  
Examiner, Art Unit 4131